Amendment

In the claims

1. (Currently amended) A method for preparing a surface-chemical gradient on a substrate comprising

selecting a speed at which the substrate will be exposed to an advancing front of a first solution comprising a first adsorbate, wherein the speed is selected based on the ~~absorption~~ adsorption kinetics of the first adsorbate onto the surface of the substrate,

exposing the substrate to the advancing front of the first solution,

wherein the substrate is exposed to the advancing front of the first solution for a time period sufficient to adsorb the first adsorbate onto the surface of the substrate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate.

2. (Previously presented) The method of claim 1, further comprising exposing the surface of the substrate to a second solution comprising a second adsorbate.

3. (Previously presented) The method of claim 1, wherein the surface-chemical gradient is a hydrophobicity gradient that changes the amount of water attracted to the surface of the substrate over the length of the surface of the substrate.

4. (Original) The method of claim 1, wherein the surface of the substrate is formed of a material selected from the group consisting of glass, metals, oxides, and synthetic polymers.

5. (Withdrawn - Previously presented) The method of claim 2, wherein the surface of the substrate is gold and the first and second solutions comprise alkanethiols.

6. (Withdrawn - Previously presented) The method of claim 2, wherein the surface of the substrate is an oxide and the first and second solutions comprise organic phosphates.

7. (Previously presented) The method of claim 2, wherein the surface of the substrate is an oxide and the first and second solutions comprise polyelectrolytes.

8. (Previously presented) The method of claim 2, wherein the surface of the substrate is a hydrophobic polymer and the first and second solutions comprise polyelectrolytes.

9. (Withdrawn) The method of claim 2, wherein the first or second adsorbate comprises a biomolecule.

10. (Previously presented) The method of claim 1, wherein the surface of the substrate is exposed to the first solution using a linear-motion drive.

11. (Previously presented) The method of claim 1, wherein the surface of the substrate is exposed to the first solution using a syringe pump.

12. (Previously presented) The method of claim 2, wherein the surface of the substrate is exposed to the second solution by full immersion.

13. (Previously presented) A method of using a surface-chemical gradient for biological analysis comprising exposing the surface-chemical gradient to cells, wherein the surface-chemical gradient comprises a first adsorbate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate and a second adsorbate in an amount increasing in concentration from the first area on the substrate to the second area on the substrate, wherein the surface gradient is radially symmetrical.

14. (Withdrawn - Previously presented) The method of claim 13, wherein the first or second adsorbate comprises a biomolecule.

15. (Previously presented) A method of using a surface-chemical gradient for analysis comprising exposing the surface-chemical gradient to a molecule, wherein the surface-chemical gradient comprises a first adsorbate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate and a second adsorbate in an amount increasing in concentration from the first area on the substrate to the second area on the substrate, wherein the surface gradient is radially symmetrical, and wherein the molecule preferentially binds with the first adsorbate.

16. (Previously presented) A surface-chemical gradient on a surface of a substrate comprising a first adsorbate in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate and a second adsorbate in an amount increasing in concentration from the first area on the substrate to the second area on the substrate, wherein the surface gradient is radially symmetrical.

17. (Previously presented) The surface-chemical gradient of claim 16, wherein the gradient is formed by exposing the substrate to an advancing front of a first solution comprising a first adsorbate, wherein the substrate is exposed to the first solution for a time period sufficient to adsorb the first adsorbate onto the surface in an amount decreasing in concentration from a first area on the substrate to a second area on the substrate,

and exposing the substrate to a second solution comprising a second adsorbate.

18. (Currently amended) The ~~surface chemical gradient~~ method of claim ~~16~~ 13, wherein the ~~gradient is suitable for~~ biological analysis is selected from the group consisting of cell-motility studies, diagnostics, microfluidics, nanotribology research, and high-throughput screening.